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SUMMARY

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THE IRON AND STEEL INDUSTRY IN A DEVELOPING ECONOMY

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THE IRON AND STEEL INDUSTRY IN A DEVELOPING ECONOMY

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I. INTRODUCTION

1. Establishment of an iron and steel industry in a developing country introduces a dynamic driving force which can bring about an acceleration of economic, industrial, and social growth.

2. The decision to build an integrated iron and steel plant in a developing country involves detailed consideration of many factors. This paper discusses the prerequisites for building a successful iron and steel plant, the benefits to be gained and the evolution of such a facility in a developing country.

II. PREREQUISITES FOR BUILDING AN IRON AND STEEL PLANT

3. Not every nation can support its own iron and steelmaking industry. There are certain prerequisites for success.

4. The first need is an adequate market and the existence of such a market must be determined by a survey conducted by unbiased professionals.

5. Having established a need, the next step is to explore the vital question of availability of raw materials. They must exist in sufficient quantities, in the right places, and they must have the required properties.

6. A third requirement is adequate transportation facilities to move raw materials to the plant and the finished product to the consumer.

7. A fourth requirement is a good plant site. Proximity to raw materials, to economical means of transportation, to a suitable labor force, and to the market must be analyzed.

8. Financing the operation is not the least of the problems encountered. A favorable political climate and a satisfactory division between equity and debt financing will stimulate interest in the project abroad.

III. BENEFITS

9. Many benefits will accrue as a result of local production of iron and steel. Rapid industrialization of many nations dates from the establishment of an indigenous iron and steel industry.

10. Local manufacture of iron and steel provides employment in the developing country, and the knowledge of an assured source of steel at steady prices results in an increasing number of fabricators providing an ever-widening circle of employment.

11. The possibility of conserving critical foreign exchange is another factor worthy of careful consideration. A nation which is attempting to industrialize and is forced to spend more than half of its limited foreign exchange for the purchase of iron and steel products must consider seriously the possibility of establishing its own iron and steel capabilities.

IV. EVOLUTION OF AN IRON AND STEEL PLANT

12. The market survey must give useful information on the quantities and types of products needed immediately with projections into the future. A decision must be made to build the size of plant that will produce most economically the greatest number of products required.

13. The choice of iron-making process depends on the quantity to be produced and the types of available raw materials. The conventional blast furnace is appropriate if high grade ore and a good grade of metallurgical coke are available. Many developing nations, however, have cheap sources of electrical power and a relatively small consuming market. In this case, consideration should be given to an electric smelting furnace or to one of the so-called "direct reduction" processes. Some of the latter processes are appropriate when only non-coking coals and/or low grade ores are available.

14. For conversion of iron to steel, the Bessemer, the Thomas, the open-hearth, the top blown oxygen converter, and the electric refining processes, all with improvements and innovations, are some of the possibilities. Each has unique advantages and disadvantages and the problem is to select the one best suited to the specific operation in question.

15. Another range of choices exists in the selection of methods for producing ingots, billets and slabs, merchant or flat products. Process and equipment selected must suit the local situation.

16. Availability of reliable power, adequacy of infrastructure, profitability of the overall operation, and corporate or capital structure of the undertaking are other factors which must be considered in deciding the economic feasibility of building an iron and steel plant.

17. In evaluating the factors enumerated above and to assist in making vital decisions that will affect operations for years to come, a developing nation is well-advised to obtain the services of qualified experts to assist in the planning, supervise the construction, and train personnel both at home and abroad for the operation of the facility.

V. CONCLUSION

18. When a developing nation has a need for iron and steel and possesses the required raw materials, building its own iron and steel plant will conserve foreign exchange, will create thousands of new jobs, will permit a more rapid expansion of its industrial base, and will accelerate its rate of economic and social progress.

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